

8317082034
VBH0560STTLS

EC centrifugal fan - RadiCal

backward-curved, single-intake
with support bracket

8317082034 ebmpapst Datasheet FansCo

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Nominal data

Part number	8317082034	
Type	VBH0560STTLS	
Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min ⁻¹	1780
Power consumption	W	3350
Current draw	A	5.1
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	40

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

Data according to Commission Regulation (EU) 327/2011 (EN 17166)

		Actual	Req. 2015			
01 Overall efficiency η_{es}	%	73.1	56.9	09 Power consumption P_{ed}	kW	3.26
02 Measurement category		A		09 Air flow q_v	m ³ /h	11185
03 Efficiency category		Static		09 Pressure increase p_{fs}	Pa	733
04 Efficiency grade N		78.2	62	10 Speed (rpm) n	min ⁻¹	1780
05 Variable speed drive		Yes		11 Specific ratio*		1.01

Data obtained at optimum efficiency level.

* Specific ratio = $1 + p_{fs} / 100\,000\text{ Pa}$

The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).
The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again.
The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).

LU-207553



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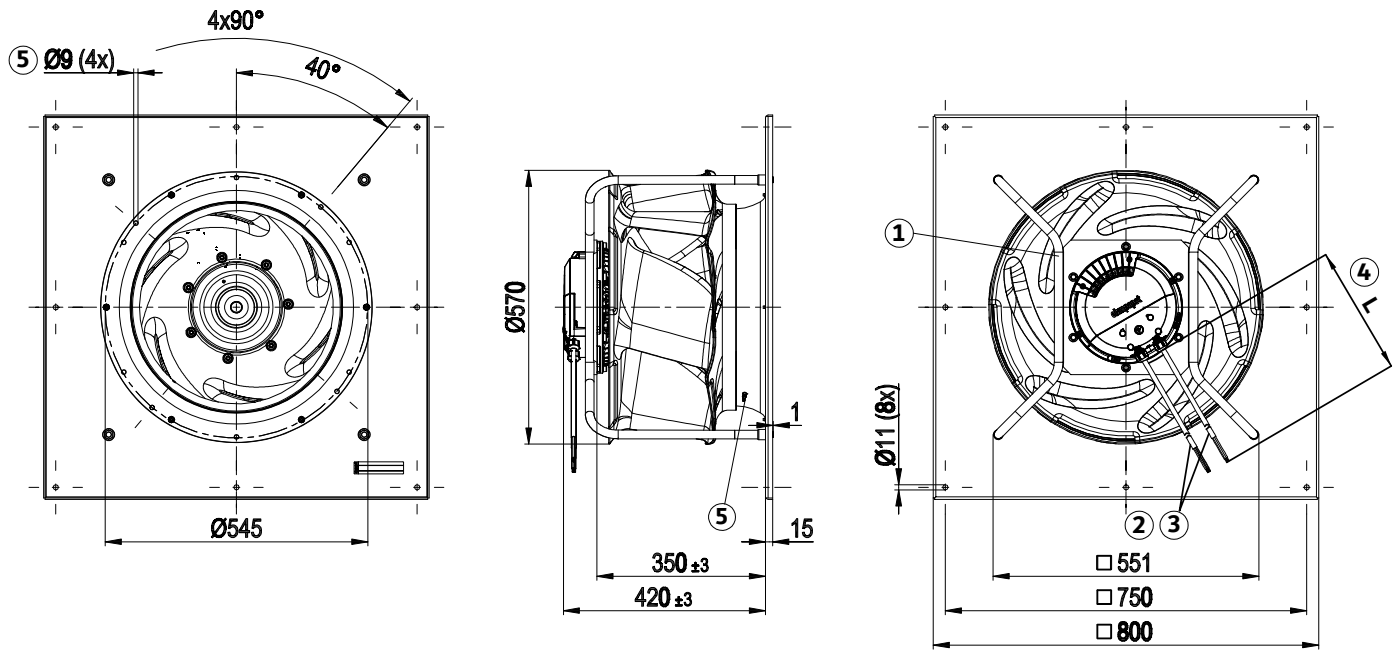
backward-curved, single-intake

Technical description

Weight	41 kg
Size	560 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Support plate material	Sheet steel, galvanized
Support bracket material	Steel, painted black
Inlet nozzle material	ABS plastic
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H1
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	See legend on product drawing
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	<ul style="list-style-type: none">- External 15-50 VDC input (parameterization)- Alarm relay- Integrated PI controller- Configurable inputs/outputs (I/O)- MODBUS V6.3- Motor current limitation- RS-485 MODBUS-RTU- Soft start- Voltage output 10VDC+/-3%, I_{max}=10mA- Control interface with SELV potential safely disconnected from the mains- Thermal overload protection for electronics/motor- Line undervoltage / phase failure detection
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Cable w/o connector
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE

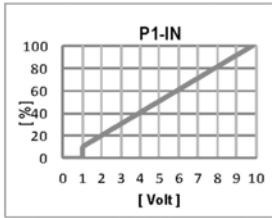


Product drawing



1	Installed position: shaft horizontal (install support struts only vertically as illustrated) or rotor on bottom; rotor on top on request
2	Cable length and customer connector (both power and signal) can be adjusted according to customer request
3	Cable wire diameter: power: AWG 15(4x); signal: AWG 22(8x)
4	L=1200mm±50mm
5	Inlet ring with pressure tap (k-factor: 410)
6	Attachment holes for FlowGrid(00630-2-2957 not included in scope of delivery)

Connection diagram



Wire color	Designation	Function/assignment
black	L1	Power supply, phase, see nameplate for voltage range
black	L2	Power supply, phase, see nameplate for voltage range
black	L3	Power supply, phase, see nameplate for voltage range
green/yellow	PE	Protective earth
grey	RSA	RS485 interface for MODBUS, RSA; SELV
brown	RSB	RS485 interface for MODBUS, RSB; SELV
blue	GND	Reference ground for control interface, SELV
white	IO1	Function parameterizable (see "Optional interface functions" table) Factory setting: Digital input - high active, function: Disable input, SELV - inactive: Pin open or applied voltage < 1.5 VDC - active: applied voltage 3.5-50 VDC Reset function: Triggering of error reset on change of state from "enabled" to "disabled"
yellow	IO2	Function parameterizable (see "Optional interface functions" table) Factory setting: Analog input 0-10 V / PWM, Ri=100 kΩ, function: Set value Characteristic curve parameterizable (see input characteristic curve P1-IN), SELV
red	Vout	Voltage output 10VDC+/-3%, I _{max} =10mA supply for external devices, SELV alternatively: 15-50 VDC input for parameterization via MODBUS without line voltage
orange (1)	COM	Status relay, floating status contact, common connection, contact rating 250 VAC / 2 A (AC1) / min. 10mA, reinforced insulation on supply side and on control interface side
orange (2)	NC	Status relay, floating status contact, break for failure
	P1-IN	Input characteristic curve

Terminal/plug assignment

Control software, Fan-Set-App, or MODBUS parameter specification V6.3
for details and additional functions, see EC

CON2	configurable IO mode	electrical specification	MODBUS Register for IO mode configuration
IO1	Dim1 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D168 [0]
	Ain1 0-10V/PWM: analog input	RI=100K, characteristic curve parameterizable, f _{PWM} =1k...10KHz, SELV	D168 [2]
	Tach out (open collector output)	U _{max} =50VDC, I _{max} =20mA, SELV	D158 [5]
	Diagnosics out (open collector output)	U _{max} =50VDC, I _{max} =20mA, SELV	D158 [6]
	Dim2 (active high): digital input	active: applied voltage 3.5-50VDC, SELV not active: pin open or applied voltage < 1.5VDC	D159 [0]
IO2	Ain2 0-10V/PWM: analog input	RI=100K, characteristic curve parameterizable, f _{PWM} =1k...10KHz, SELV	D159 [2]
	RSA RSB	RS485 bus connection,	
Vout	voltage output	Fixed voltage output 10VDC ±r.3%, I _{max} =10mA, short-circuit-proof, supply for external devices, SELV	D16E [...]
	alternatively: Input auxiliary power supply for parameterization via RS485/MODBUS RTU without line voltage	15...50VDC	

o configurable option
(o) function, activation via IO mode

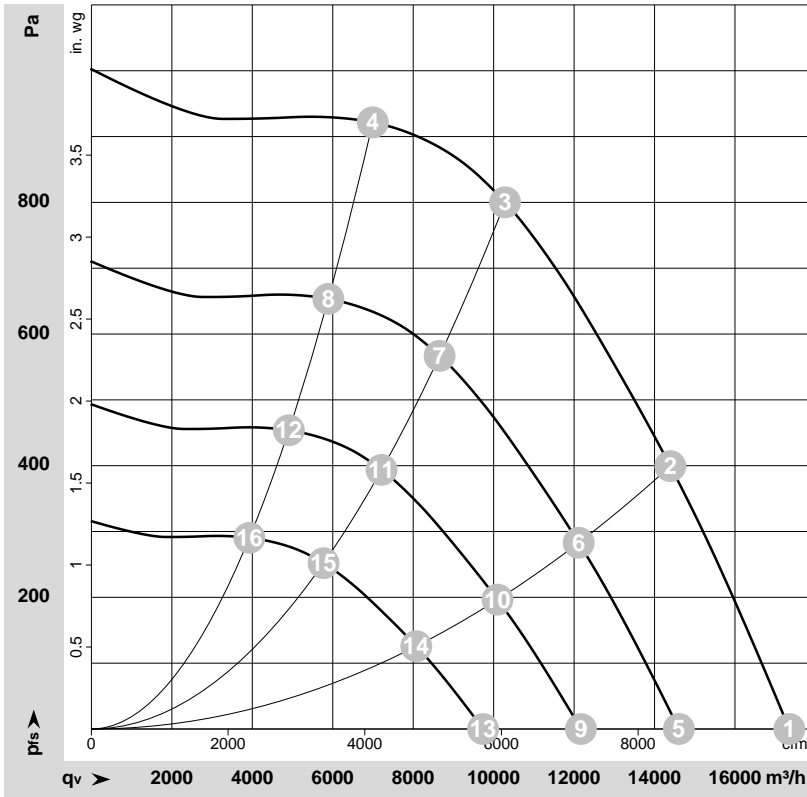
configurable IO functions: normal / Inverse

IO	INPUT	OUTPUT
D101 [...]	source: set value	
D147 [...]	source: sensor value	
D104 [...]	switch: parameter set: #1 / #2	
D12E [...]	switch: control function: heating (pos.) / cooling (neg.)	
D148 [...]	switch: direction of rotation: cw / ccw	
D16C [...]	switch: set value source	
D16A [...]	switch: fan enable / disable	
(selected directly via IO)	signal: tach out	(o)
(selected directly via IO)	signal: diagnostics out	(o)
D130 [0]	signal: fan modulation level %	
D130 [1]	signal: actual speed	
D130 [2]	signal: system modulation level %	
D130 [5]	signal: remote control output 0-10V	
D00C [1]	pulse input for auto-addressing	o
D130 [4]	pulse output for auto-addressing	

customer connection side



Curves: Air performance 50 Hz



$\rho = 1.15 \text{ kg/m}^3 \pm 2 \%$
Measurement: LU-207553-1

Air performance measured according to ISO 5801 installation category A. For detailed information on the measurement setup, contact ebm-papst. Intake sound level: Sound power level according to ISO 13347 / sound pressure level measured at 1 m distance from fan axis. The values given are valid under the specified measuring conditions and may vary due to conditions of installation. For deviations from the standard configuration, the parameters have to be checked on the installed unit.

Measured values

	Wired	U	f	n	P _{ed}	I	LpA _{in}	LwA _{in}	LwA _{out}	q _v	p _{fs}	q _v	p _{fs}
		V	Hz	min ⁻¹	W	A	dB(A)	dB(A)	dB(A)	m ³ /h	Pa	cfm	in. wg
1	3~	400	50	1780	1835	2.89	87	92	96	17350	0	10210	0.00
2	3~	400	50	1780	2817	4.33	79	86	91	14390	400	8470	1.61
3	3~	400	50	1780	3350	5.10	71	78	84	10285	800	6055	3.21
4	3~	400	50	1780	3094	4.75	78	85	89	6995	920	4120	3.69
5	3~	400	50	1500	1094	1.72	82	88	92	14605	0	8595	0.00
6	3~	400	50	1500	1680	2.59	75	82	86	12115	286	7130	1.15
7	3~	400	50	1500	1984	3.04	66	74	80	8655	569	5095	2.28
8	3~	400	50	1500	1847	2.83	74	80	85	5890	654	3465	2.63
9	3~	400	50	1250	633	1.00	78	83	87	12170	0	7165	0.00
10	3~	400	50	1250	972	1.50	70	77	82	10095	199	5940	0.80
11	3~	400	50	1250	1148	1.76	62	69	76	7215	395	4245	1.59
12	3~	400	50	1250	1069	1.64	69	76	80	4910	454	2890	1.82
13	3~	400	50	1000	324	0.51	72	77	82	9735	0	5730	0.00
14	3~	400	50	1000	498	0.77	64	71	76	8075	127	4755	0.51
15	3~	400	50	1000	588	0.90	56	63	70	5770	253	3395	1.02
16	3~	400	50	1000	547	0.84	63	70	74	3925	291	2310	1.17

Wired = Wiring · U = Voltage · f = Frequency · n = Speed (rpm) · P_{ed} = Power consumption · I = Current draw · LpA_{in} = Sound pressure level intake side · LwA_{in} = Sound power level intake side
LwA_{out} = Sound power level outlet side · q_v = Air flow · p_{fs} = Pressure increase